This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-30 (Cancelled)

31. (Currently Amended) The method of claim 36 ~~30~~, wherein the phosphate concentration is about 10 mM.

32 (Currently Amended) The method of claim 36 ~~30~~, wherein the amount of free NO is about 100 nM to about 1 mM and the ratio of free NO to heme is about 1:4000 to about 1:100.

33. (Cancelled)

34. (Currently Amended) The method of claim 40 ~~33~~, wherein the phosphate concentration is about 10 mM.

35 (Currently Amended) The method of claim 40 ~~33~~, wherein the amount of free NO is about 100 nM to about 1 mM and the ratio of free NO to heme is about 1:4000 to about 1:100.

36. (New) A method for producing S-nitrosohemoglobin, said method comprising the addition of free NO to oxyhemoglobin under conditions to produce S-nitrosohemoglobin, said conditions comprising:
(a) adding free NO in an amount sufficient to produce S-nitrosohemoglobin;
(b) maintaining the R structure of hemoglobin; and,
(c) preserving the redox chemistry of hemoglobin,

wherein the conditions for maintaining the R structure of hemoglobin comprise a phosphate concentration that is less than 100 mM and wherein the conditions for preserving the redox chemistry of hemoglobin occur in the absence of borate.

37. (New) The method of claim 36, wherein preserving the redox chemistry of hemoglobin permits the transfer of NO from the heme Fe to cysteine on the β subunit.

38. (New) The method of claim 36, wherein the conditions for preserving the redox chemistry of hemoglobin further comprise the addition of redox modifiers.

39. (New) The method of claim 38, wherein the redox modifier is nitrite.

40. (New) A method for producing intraerythrocytic S-nitrosohemoglobin, said method comprising the addition of free NO to oxygenated erytrocytes under conditions to produce intraerythrocytic S-nitrosohemoglobin, said conditions comprising:
(a) adding free NO in an amount sufficient to produce intraerythrocytic S-nitrosohemoglobin;
(b) maintaining the R structure of hemoglobin; and,
(c) preserving the redox chemistry of hemoglobin,

wherein the conditions for maintaining the R structure of hemoglobin comprise a phosphate concentration that is less than 100 mM and wherein the conditions for preserving the redox chemistry of hemoglobin occur in the absence of borate.

41. (New) The method of claim 40, wherein preserving the redox chemistry of hemoglobin permits the transfer of NO from the heme Fe to cysteine on the β subunit.

42. (New) The method of claim 40, wherein the conditions for preserving the redox chemistry of hemoglobin further comprise the addition of redox modifiers.

43. (New) The method of claim 42, wherein the redox modifier is nitrite.